REMARKS

In the Office Action dated June 4, 2003, claims 1-22 were pending, claims 1-8, 10-19, 21 and 22 were rejected, and claims 9 and 20 were objected to. In response thereto, claims 1, 8, 9, 12, 19 and 20 have been amended herein and claims 7 and 18 have been cancelled. In addition, new claims 25-28 have been added to more completely claim the invention. Specifically, new claims 25-26 are directed to a method for the simultaneous quantitative and qualitative determination of individual phospholipids in a phospholipid mixture, and new claims 27-28 are directed to an elution solvent mixture for use in the qualitative and/or quantitative determination of individual phospholipids in a phospholipid mixture using thin layer chromatography. None of the amendments set forth herein constitute the addition of new matter. Support for the new claims can be found throughout the application. See, for example, page 7, lines 24-26 of the Specification. Upon entry of this Amendment, claims 1-6, 8-17, 19-22, and 25-28 are pending for the Examiner's consideration. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

A. Rejections under 35 U.S.C. § 102(b) addressed

Claims 1-6 and 12-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Korte et al. In addition, claims 1-6 and 12-17 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Entezami et al. These rejections are respectfully traversed.

As the Examiner is aware, the CAFC has stated that anticipation requires the presence in a single prior art reference of the disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenefabrik GMBH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 1458 (Fed. Cir. 1984); *Altco Standard Corporation v. Tennessee Valley Authority*, 1 USPQ 1337, 1341 (Fed. Cir. 1986); 774 F.2d 1082 (Fed. Cir. 1985).

1. Korte fails to meet Applicants' claim element of "an elution solvent mixture comprising chloroform, methanol, acetic acid, and an aqueous solution of potassium chloride".

The Examiner asserts on page 2 of the Office Action that Korte teaches a method for one-dimensional thin layer chromatography to separate phospholipids by extracting a mixture of PC, PE and PI into a 2:1 chloroform/methanol extraction solvent, spotting the extract onto

a silica TLC plane, chromatographing the spotted plate in an elution solvent, and scanning and detecting the phospholipids. This rejection is respectfully traversed.

It is asserted that Korte does not expressly or inherently describe all of the elements set forth in claims 1-6 and 12-17. Independent claims 1 and 12 have been amended herein to recite that the elution solvent mixture comprises "chloroform, methanol, acetic acid, and an aqueous solution of potassium chloride".

In contrast, Korte teaches an elution solvent mixture comprising chloroform, ethanol, water, and triethylamine. Since the Korte elution solvent mixture does not include acetic acid, methanol, and an aqueous solution of potassium chloride, Korte does not teach every element of independent claims 1 and 12, and therefore cannot anticipate claims 1 and 12 or the claims that depend therefrom. Further, since the elution solvent mixture of Korte contains significantly different elements than that of the present invention (e.g., Korte's solvent mixture includes a base, i.e., triethylamine, whereas the elution solvent mixture of the present invention includes an acid, i.e., acetic acid) the elution solvent mixture of Korte cannot perform in a similar fashion as the elution solvent mixture of the present invention. For at least this reason, Korte also does not render the present invention obvious. Withdrawal of this Section 102(b) rejection over Korte is respectfully requested.

For the same reasons presented above, new claims 25-28 are also novel and nonobvious in view of Korte.

2. Entezami fails to meet Applicants' claim elements of "a phospholipid mixture comprises a neutral lipid" or "an elution solvent mixture comprising chloroform, methanol, acetic acid, and an aqueous solution of potassium chloride".

The Examiner asserts on page 3 of the Office Action that Entezami teaches a method for the analysis and separation of phospholipids by TLC by extracting a mixture of standard phospholipids into a 2:1 chloroform/methanol extraction solvent, spotting the extract onto a silica TLC plate, chromatographing the spotted plate in an elution solvent, and scanning and detecting the phospholipids. This rejection is respectfully traversed.

Applicants submit that Entezami does not expressly or inherently describe all of the elements set forth in claims 1-6 and 12-17. Independent claims 1 and 12 are directed to methods for the quantitative determination of individual phospholipids in a phosopholipid mixture, wherein the mixture comprises a neutral lipid. Further, as stated above, independent claims 1 and 12 have been amended herein to recite that the elution solvent mixture

comprises "chloroform, methanol, acetic acid, and an aqueous solution of potassium chloride".

In contrast, Entezami does not teach a method of separating a mixture of phospholipids which includes a neutral lipid as recited in independent claims 1 and 12. Rather, Entezami first uses a DEAE Sephadex column to separate total lipids into neutral and acidic lipids, and then separates the acidic lipids by TLC. Further, Entezami's elution solvent for separating acidic lipids comprises chloroform, methanol, methyl acetate, n-propanol and aqueous potassium chloride.

Since Entezami intentionally separates neutral lipids from acidic lipids prior to analyzing the acidic lipids by TLC, Entezami does not teach or even suggest a method of quantitatively determining individual phospholipids in a mixture that also includes a neutral lipid. In fact, Entezami teaches away from analyzing a mixture comprising both neutral and acidic lipids. In addition, Entezami's elution solvent mixture does not include acetic acid. Accordingly, Entezami does not teach every element of independent claims 1 and 12, and therefore cannot anticipate claims 1 and 12 or the claims that depend therefrom. Further, since the elution solvent mixture of Entezami contains significantly different elements than that of the present invention (e.g., Entezami's solvent mixture includes an ester, i.e., triethylamine, whereas the elution solvent mixture of the present invention includes an acid, i.e., acetic acid) the elution solvent mixture of Entezami cannot perform in a similar fashion as the elution solvent mixture of the present invention. For at least this reason, Entezami also does not render the present invention obvious. Withdrawal of this Section 102(b) rejection over Entezami is respectfully requested.

For the same reasons presented above, new claims 25-28 are also novel and nonobvious in view of Entezami.

B. Rejections under 35 U.S.C. § 103(a) addressed

Claims 7-8 and 18-19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over either Korte or Entezami in view of Schmitz et al. In addition, claims 10-11 and 21-22 are rejected under 35 U.S.C. § 103(a) as being unpatentable over either Korte or Entezami in view of White et al. These rejections are respectfully traversed.

1. The combination of either Korte or Entezami in view of Schmitz et al. does not render claims 7-8 and 18-19 obvious.

The Examiner asserts that both Korte and Entezami fail to teach that the elution solvent contains chloroform, methanol, acetic acid and an aqueous solution of potassium, and then cites Schmitz for teaching this deficiency in the Korte and Entezami teachings. The Examiner concludes that based on a combination of either Korte or Entezami with Schmitz, it would have been obvious to one of ordinary skill in the art to use the elution solvent taught by Schmitz in the method taught by Korte and Entezami since Schmitz teaches that such an elution solvent in a TLC method serves to effectively separate several different types of phospholipids and is equivalent in function to the elution solvents disclosed in the primary references.

It is respectfully submitted that the Examiner's assertion is based on an incorrect interpretation of Schmitz. The Examiner errs in asserting that Schmitz teaches the claimed elution solvent mixture comprising chloroform, methanol, acetic acid, and an aqueous solution of potassium chloride. In fact, Schmitz teaches an elution solvent mixture comprising acetic acid methyl ester, n-propanol, chloroform, methanol, and potassium chloride (see page 67, second to last paragraph of Schmitz). Acetic acid methyl ester is an alternative name for methyl acetate, which is an ester. It is well known in the art that esters are not the same nor function in a similar manner as acids. Since the elution solvent mixture of Schmitz contains a significantly different element (i.e., methyl acetate) than the elution solvent mixture of the present invention (i.e., acetic acid), the Schmitz elution solvent mixture cannot perform in a similar fashion as the elution solvent mixture of the present invention. Thus, even if there were a suggestion to modify the methods of Korte or Entezami by using the elution solvent mixture of Schmitz, the modification still would not render the methods of the present invention obvious. Withdrawal of the Section 103(a) over either Korte or Entezami in view of Schmitz is respectfully requested.

For the same reasons presented above, new claims 25-28 are also novel and nonobvious over the combination of either Korte or Entezami in view of Schmitz.

2. The combination of either Korte or Entezami in view of White et al. does not render claims 10-11 and 21-22 obvious.

The Examiner asserts that both Korte and Entezami fail to teach that the separated phospholipids are detected in an ultraviolet detection system after staining with primulin, and

then cites White for teaching this deficiency in the Korte and Entezami teachings. The Examiner concludes that based on a combination of either Korte or Entezami with White, it would have been obvious to one of ordinary skill in the art to detect the separated phospholipids in the methods taught by Korte and Entezami by staining the separated phospholipids with primulin followed by exposure to UV light since White teaches that this is one known way in which to detect and quantitate separated phospholipids, which is equivalent in function to the means for detection disclosed by Korte and Entezami. This rejection is respectfully traversed.

As discussed above, neither Korte nor Entezami teach the elution solvent mixture of the present invention, and in fact teach solvent systems that contain significantly different element(s) and therefore would not separate a mixture of phospholipids in the same manner as the elution solvent system of the present invention as claimed. Further, there is no suggestion in either Korte or Entezami to substitute or add an element of the claimed invention to their solvent systems to arrive at the solvent system of the present invention. Accordingly, since there is no teaching or even a suggestion to use the presently claimed elution solvent mixture, Korte and Entezami provide no expectation that such a solvent system would be successful.

White is cited for teaching that phospholipids that have been separated on a TLC plate can be detected by staining with primulin and visualizing with UV light. However, even if the detection method as taught by White were used in the methods of either Korte or Entezami, the combination of these references still would not render the present invention obvious, since as discussed neither Korte nor Entezami teach or suggest the solvent system of the present invention. Withdrawal of the Section 103(a) rejection over either Korte or Entezami in view of White is respectfully requested.

For the same reasons presented above, new claims 25-28 are also novel and nonobvious over the combination of either Korte or Entezami in view of White.

C. Claim objections addressed

The Examiner states that claims 9 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. It is appreciated that claims 9 and 20 would be allowable if amended as the Examiner suggests. However, Applicants wish to continue prosecution of claims 9 and 20 as presently pending.

FEES DUE TO FILE THIS AMENDMENT

When this application was filed, a fee was paid for a total of 24 claims, with 2 of them being independent claims. The above amendment has resulted in there being a total of 22 claims, with 4 of them being independent claims. Thus, additional fee for 1 independent claim(s) in the amount of $86.00 is due. The Commissioner is hereby authorized to charge Deposit Account No. 50-1225 (Docket No. ECV-5611). A duplicate copy of this sheet is enclosed.

PETITION FOR EXTENSION OF TIME TO RESPOND

Pursuant to 37 C.F.R. 1.136(a), Applicants hereby request an extension of time for 3 Months to respond to the above-referenced Office Action. The Commissioner is hereby authorized to charge the required fee of $950.00 to Deposit Account No. 50-1225 (Docket No. ECV-5611). A duplicate copy of this sheet is enclosed.

CONCLUSION

Accordingly, in view of the above amendments and remarks, it is submitted that this application is now ready for allowance. Early notice to this effect is solicited. If in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at (949) 250-6801.

If an appropriate payment does not accompany or precede this submission, the Commissioner is hereby authorized to charge any required fees, such as under 37 C.F.R. §§ 1.16 or 1.17, including any petition for extension of time, or to credit any overpayment, to Deposit Account No. 50-1225.

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Respectfully submitted,

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